

# Fibrin Glue is a Viable Alternative to Fat Graft for Interposition After Tarsal Coalition Resection

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## INTRODUCTION:

Tarsal coalition is one of the most common foot and ankle pathologies in children, yet there is no consensus for the type of interposition after resection. Fibrin glue is a possible interposition, but the literature comparing fibrin glue to other interposition types is sparse. The purpose of this study was to evaluate the effectiveness of fibrin glue as an interposition compared to fat graft as an interposition by analyzing the rate of coalition recurrence and wound complications. We hypothesized that fibrin glue would have similar rates of coalition recurrence and less wound complications compared to fat graft interposition while eliminating the need for tissue harvesting.

## METHODS:

A retrospective cohort study was performed using a billing query to identify all patients who had undergone a tarsal coalition resection at a free-standing children's hospital in the United States from 2000 to 2021. Records were reviewed for demographic data, procedures performed, coalition recurrence, and wound complications. Only patients undergoing primary tarsal coalition resection without other procedures who had an interposition of fibrin glue or fat graft were included. Wound complications were defined as any concern of an incision site that prompted the use of antibiotics. Descriptive statistics were calculated for all variables. Comparative analyses were conducted using chi squared and fisher's exact test when appropriate to examine relationships between interposition type, coalition recurrence, and wound complications.

## RESULTS:

A total of 124 tarsal coalition resections that met our inclusion criteria were identified. Fibrin glue was used as an interposition in 29 cases and a fat graft was used as an interposition in 95 cases. The difference in the coalition recurrence rate between fibrin glue and fat graft interposition was not statistically significant (6.9% vs. 4.2%,  $p = 0.624$ ). The difference in wound complication rate between fibrin glue and fat graft interposition was not statistically significant (3.4% vs. 8.4%,  $p = 0.366$ ).

## DISCUSSION AND CONCLUSION:

Interposition with fibrin glue after tarsal coalition resection is a viable alternative to interposition with fat grafts. Fibrin glue has similar rates of coalition recurrence and similar rates of wound complications when compared to fat graft interposition. To our knowledge, this study is the first to compare fibrin glue interposition to fat graft interposition after tarsal coalition resection. Given the results of our comparative analysis and the lack of tissue harvesting required with fibrin glue, fibrin glue may be superior to fat grafts for interposition after tarsal coalition resection.

Characteristics	Fibrin Glue	Fat Graft	p*
Age (y)	11.7	12.1	0.439
Sex [n (%)]			0.292
Female	17 (58.6)	44 (46.3)	
Male	12 (41.4)	51 (53.7)	
Ethnicity [n (%)]			0.125
Hispanic	21 (72.4)	51 (53.7)	
White	4 (13.8)	23 (24.2)	
Black	3 (10.3)	4 (4.2)	
Other	0 (0)	4 (4.2)	
Unknown	1 (3.4)	13 (13.7)	
Classification [n (%)]			0.860
Calcaneonavicular	21 (72.4)	64 (67.4)	
Talocalcaneal	8 (27.6)	29 (30.5)	
Talonavicular	0 (0)	1 (1.1)	
Cuboid Navicular	0 (0)	1 (1.1)	

Values are averages; absolute frequencies (percentage)  
\*ANOVA test, Chi-squared test

Characteristics	Fibrin Glue	Fat Graft	p*
Recurrence of coalition [n (%)]	2 (6.9%)	4 (4.2%)	0.624
Wound Complications [n (%)]	1 (3.4%)	8 (8.4%)	0.366

Values are absolute frequencies (percentage)  
\*Chi-squared test